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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 4 1998

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Use of the Minimum Levels (ML) in Water Quality Standards

TO: George Golliday
USEPA Region 3

FROM: William A. Telliard
Director, Analytical Methods Staff
Engineering and Analysis Division (4303)

This memo responds to your request for information concerning the application of the minimum level of quantitation (ML) to water quality standards. Establishing permit limits and other standards is in the purview of the Permits Division (4203) within the Office of Wastewater Management, and that Division may be able to provide information and assistance in this matter. Please contact Jim Pendergast (202-260-9545; PENDERGAST.JAMES@EPAMAIL.EPA.GOV) for the latest approaches to setting limits for water quality standards.

As for use of the method detection limit (MDL) and ML in water quality standards, we understand that some States have used the MDL, some States have used the ML, and some States have used other approaches. For examples, we understand that MLs were used to establish water quality standards for the Great Lakes Initiative (60 FR 15366) and that the State of Virginia has used an approach suggested by industry.

Our recommendation has been that MLs be used as the compliance evaluation threshold when the water-quality-based effluent limit is below the detection or quantitation limit of the most sensitive, approved analytical method. Some States have objected to this approach, claiming that the MDL should be used for those instances in which it is necessary to be more protective of the environment, and some members of the regulated industry have objected on the grounds that the ML results in a compliance evaluation threshold that is too low. For those analytes for which MLs are not included in analytical methods, we proposed MLs in the Streamlining Initiative (62 FR 14975). MLs are necessarily tied to methods. Because there may be more than one method for a given analyte, there may be more than one ML. The regulatory authority therefore may choose the method/ML that most closely suits its needs. For those instances in which an MDL is given in a method but an ML is not, we suggest use of the interim ML at 3.18 times the MDL.

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On the other hand, use of the MDL may be necessary to be protective of the environment, as suggested by some States. The MDL provides 99% confidence of detection; i.e., if a pollutant is detected at the MDL, there is a 1% probability of a false positive. As to quantitation at the MDL, Joe Slayton is correct in stating that the measurement error at the MDL is approximately 50%. In addition, if the MDL is used as a reporting threshold (a cutoff) and the true value of the pollutant in the water is at the MDL, there is a 50/50 probability of detection because a result below the MDL will not be reported. The same is true if the ML is used as a reporting threshold.

If further information is needed, please contact Jim Pendergast or me as appropriate.

cc: James Pendergast